

SECURE PLATFORM FOR ICT SYSTEMS ROOTED AT THE SILICON MANUFACTURING PROCESS (SPIRS)

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SPIRS addresses innovative approaches to provide security and data-privacy to future Information and **Communications Technology (ICT) elements**

It integrates a hardware dedicated **Root** of Trust (RoT) and a processor core with the capability of offering a full suite of security services. RoT is implemented in hardware with a dedicated circuitry to extract a unique digital identifier for the SPIRS platform using a silicon CMOS Physical Unclonable Function (PUF). The RoT also integrates attack resistant cryptographic hardware cores that incorporate countermeasures, so minimizing the vulnerability against side-channel (SCA) and fault injection (FA) attacks. The security of the core is reinforced with the implementation of a mutual authentication scheme between the RoT and the embedded software. To build a complete solution, the project also features a Trusted Execution Environment (TEE), secure boot, and runtime integrity. Furthermore, the SPIRS platform will be able to leverage this capability to support privacy-respectful attestation mechanisms and enable trusted communication channels across 5G infrastructures and the respective management domains.





Objectives

The main goal of SPIRS is to establish chains of trust rooted in the silicon manufacturing process for ICT systems, and apply them in improving the supply chain for networked infrastructures.

Objective 1.

Design of a platform with a tamper-proof silicon RoT.

Objective 2.

Design of a TEE using the silicon RoT.

Objective 3.

Integration of the platform into network infrastructures using the silicon RoT.

Objective 4. Implementation of the platform.

Objective 5.

Evaluation of the platform in different scenarios: Industry 4.0 and 5G Communication Infrastructure and management systems.

Workplan









Embedded systems, SoC design methodologies

THALES Building a future we can all trust **RISC-V** core



Hardware security Privacy-respectful protocols

Telefónica Network infrastructure protection

Politecnico di Torino Remote attestation protocols **FONDAZIONE** IoT systems /IoT interactions

Validation in Industry 4.0

NEXT Validation in Industry 4.0

O countries

9 partners

3 large companies 1 SME 5 academic centers





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